

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Original) A radiation image recording and read-out method, comprising the steps of:
 - i) supporting a stimuable phosphor sheet at a position for image recording, at which one surface of the stimuable phosphor sheet is exposed to radiation,
 - ii) exposing the one surface of the stimuable phosphor sheet, which is supported at the position for image recording, to the radiation, a radiation image being thereby stored on the stimuable phosphor sheet,
 - iii) performing an image read-out operation by irradiating stimulating rays in two-dimensional directions to the stimuable phosphor sheet, on which the radiation image has been stored during its exposure to the radiation, the stimulating rays causing the stimuable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to the radiation, and photoelectrically detecting the emitted light, an image signal, which represents the radiation image having been stored on the stimuable phosphor sheet, being thereby obtained, and
 - iv) releasing energy, which remains on the stimuable phosphor sheet after the image signal has been obtained from the stimuable phosphor sheet, by irradiating erasing light to an entire area of the stimuable phosphor sheet with an erasing light source, the erasing light source being located on a side of the other surface of the stimuable phosphor sheet supported at the

position for image recording, which other surface is opposite to the one surface of the stimuable phosphor sheet exposed to the radiation,

wherein a filter, which has transmitting properties with respect to the erasing light and has good absorbing properties with respect to the radiation, is located on a side of the erasing light source, which side stands facing the stimuable phosphor sheet.

2. (Original) A method as defined in Claim 1 wherein the filter is a filter, which transmits only light constituted of light components having wavelengths longer than wavelengths of an ultraviolet region.

3. (Original) A method as defined in Claim 1 or 2 wherein the filter is constituted of a material selected from the group consisting of a plastic material, which contains a heavy metal, and a glass, which contains a heavy metal.

4. (Currently Amended) A radiation image recording and read-out method as defined in Claim 1 or 2, comprising the steps of:

i) supporting a stimuable phosphor sheet at a position for image recording, at which one surface of the stimuable phosphor sheet is exposed to radiation,

ii) exposing the one surface of the stimuable phosphor sheet, which is supported at the position for image recording, to the radiation, a radiation image being thereby stored on the stimuable phosphor sheet,

iii) performing an image read-out operation by irradiating stimulating rays in two-dimensional directions to the stimuable phosphor sheet, on which the radiation image has been stored during its exposure to the radiation, the stimulating rays causing the stimuable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to the radiation, and photoelectrically detecting the emitted light, an image signal, which represents the radiation image having been stored on the stimuable phosphor sheet, being thereby obtained,
and

iv) releasing energy, which remains on the stimuable phosphor sheet after the image signal has been obtained from the stimuable phosphor sheet, by irradiating erasing light to an entire area of the stimuable phosphor sheet with an erasing light source, the erasing light source being located on a side of the other surface of the stimuable phosphor sheet supported at the position for image recording, which other surface is opposite to the one surface of the stimuable phosphor sheet exposed to the radiation,

wherein a filter, which has transmitting properties with respect to the erasing light and has good absorbing properties with respect to the radiation, is located on a side of the erasing light source, which side stands facing the stimuable phosphor sheet,

wherein the stimuable phosphor sheet is kept stationary at the position for image recording, and

the image read-out operation is performed with image read-out means, which is located between the stimuable phosphor sheet and the erasing light source.

5. (Original) A method as defined in Claim 4 wherein the image read-out means comprises:

a) a read-out unit for irradiating the stimulating rays to the stimuable phosphor sheet in a one-dimensional direction

along a main scanning direction and detecting the light, which is emitted by the stimuable phosphor sheet when the stimulating rays are irradiated to the stimuable phosphor sheet in the one-dimensional direction, and

b) unit moving means for moving the read-out unit in a sub-scanning direction.

6. (Original) A method as defined in Claim 5 wherein the read-out unit comprises a linear stimulating ray source, which linearly irradiates the stimulating rays to an area of the stimuable phosphor sheet, and

a line sensor, which is located along the linear area of the stimuable phosphor sheet exposed to the linear stimulating rays and photoelectrically detects the light emitted by the stimuable phosphor sheet when the stimulating rays are irradiated to the stimuable phosphor sheet.

7. (Original) A radiation image recording and read-out apparatus, comprising:

i) an image recording section for supporting a stimuable phosphor sheet at a position for image recording, at which one surface of the stimuable phosphor sheet is exposed to radiation,

ii) image read-out means for performing an image read-out operation by irradiating stimulating rays in two-dimensional directions to the stimuable phosphor sheet, on which a radiation image has been stored during its exposure to the radiation in the image recording section, the stimulating

rays causing the stimuable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to the radiation, and photoelectrically detecting the emitted light, an image signal, which represents the radiation image having been stored on the stimuable phosphor sheet, being thereby obtained, and

iii) an erasing light source located on a side of the other surface of the stimuable phosphor sheet supported at the position for image recording, which other surface is opposite to the one surface of the stimuable phosphor sheet exposed to the radiation, the erasing light source releasing energy, which remains on the stimuable phosphor sheet after the image signal has been obtained from the stimuable phosphor sheet, by irradiating erasing light to an entire area of the stimuable phosphor sheet,

wherein a filter, which has transmitting properties with respect to the erasing light and has good absorbing properties with respect to the radiation, is located on a side of the erasing light source, which side stands facing the stimuable phosphor sheet.

8. (Original) An apparatus as defined in Claim 7 wherein the filter is a filter, which transmits only light constituted of light components having wavelengths longer than wavelengths of an ultraviolet region.

9. (Original) An apparatus as defined in Claim 7 or 8 wherein the filter is constituted of a material selected from the group

consisting of a plastic material, which contains a heavy metal, and a glass, which contains a heavy metal.

10. (Currently Amended) ~~An apparatus as defined in Claim 7 or 8~~ A radiation image recording and read-out apparatus, comprising:

i) an image recording section for supporting a stimuable phosphor sheet at a position for image recording, at which one surface of the stimuable phosphor sheet is exposed to radiation,

ii) image read-out means for performing an image read-out operation by irradiating stimulating rays in two-dimensional directions to the stimuable phosphor sheet, on which a radiation image has been stored during its exposure to the radiation in the image recording section, the stimulating

rays causing the stimuable phosphor sheet to emit light in proportion to an amount of energy stored thereon during its exposure to the radiation, and photoelectrically detecting the

emitted light, an image signal, which represents the radiation image having been stored on the stimuable phosphor sheet, being thereby obtained, and

iii) an erasing light source located on a side of the other surface of the stimuable phosphor sheet supported at the position for image recording, which other surface is opposite to the one surface of the stimuable phosphor sheet exposed to the radiation, the erasing light source releasing energy, which remains on the stimuable phosphor sheet after the image signal has been obtained from the stimuable phosphor sheet, by irradiating erasing light to an entire area of the stimuable phosphor sheet,

wherein a filter, which has transmitting properties with respect to the erasing light and has good absorbing properties with respect to the radiation, is located on a side of the erasing light source, which side stands facing the stimuable phosphor sheet,

wherein the stimuable phosphor sheet is kept stationary at the position for image recording, and

the image read-out means is located between the stimuable phosphor sheet and the erasing light source.

11. (Original) An apparatus as defined in Claim 10 wherein the image read-out means comprises:

a) a read-out unit for irradiating the stimulating rays to the stimuable phosphor sheet in a one-dimensional direction along a main scanning direction and detecting the light, which is

emitted by the stimuable phosphor sheet when the stimulating rays are irradiated to the stimuable phosphor sheet in the one-dimensional direction, and

b) unit moving means for moving the read-out unit in a sub-scanning direction.

12. (Original) An apparatus as defined in Claim 11 wherein the read-out unit comprises a linear stimulating ray source, which linearly irradiates the stimulating rays to an area of the stimuable phosphor sheet, and

a line sensor, which is located along the linear area of the stimuable phosphor sheet exposed to the linear stimulating rays and photoelectrically detects the light emitted by the stimuable phosphor sheet when the stimulating rays are irradiated to the stimuable phosphor sheet.